HED DOC. NO. 014554

April 30, 2001

MEMORANDUM

SUBJECT: ***OXYFLUORFEN*** **-** Report of the FQPA Safety Factor Committee

FROM: Brenda Tarplee, Executive Secretary
FQPA Safety Factor Committee
Health Effects Division (7509C)

THROUGH: Ed Zager, Chairman
FQPA Safety Factor Committee
Health Effects Division (7509C)

TO: Felecia Fort, Risk Assessor
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PC Code: 111601

The FQPA Safety Factor Committee evaluated the available hazard and exposure data for oxyfluorfen on April 9, 2001 and recommended the FQPA safety factor to be used in human health risk assessments (as required by Food Quality Protection Act of August 3, 1996). The committee concluded that the FQPA safety factor could be removed (1x) in assessing the risk posed by this chemical.

I. HAZARD ASSESSMENT

(*Correspondence:* F. Fort to B. Tarplee dated 03/29/01; Responses prepared by K. Farwell)

A. Adequacy of the Toxicology Database

The toxicology data base for oxyfluorfen is complete. The following acceptable guideline studies are available: developmental toxicity studies with oxyfluorfen in the rat and rabbit (conducted with both 98% a.i. and 71% a.i.); and a 2-generation reproductive toxicity study in the rat (conducted with 71% a.i.). The HIARC used the toxicity studies conducted with the 98% a.i. (representing the new manufacturing process) for hazard characterization and toxicity endpoint selection. No additional studies are required at this time.

B. Determination of Susceptibility

The data demonstrated no indication of increased susceptibility of rats or rabbits to *in utero* and/or postnatal exposure to oxyfluorfen. In the developmental toxicity study in rats with 98% a.i., no developmental toxicity was seen at the limit dose. In the developmental toxicity study conducted in rabbits with 98% a.i., there was no quantitative or qualitative evidence of susceptibility (developmental toxicity occurred at the same dose that caused maternal toxicity and was not considered to be more severe).

In the two generation reproduction study in rats with 71% a.i., offspring toxicity was manifested as decreased live pups per litter and decreased pup body weight in the presence of maternal toxicity (mortality in one dam, decreased body weight gain, and liver and kidney lesions) at the same dose. The HIARC determined that any uncertainty with respect to the fetal deaths observed in this study were allayed since the pup deaths seen at Day 0, (i.e., prenatal death) were not seen at a much higher dose (1000 mg/kg/day) in the prenatal developmental toxicity study in rats conducted with the 98% a.i. Therefore, it was concluded that there was no quantitative or qualitative increase in susceptibility following pre/postnatal exposure to oxyfluorfen in the reproduction study.

C. Requirement of a Developmental Neurotoxicity Study

The HIARC concluded that a developmental neurotoxicity study with oxyfluorfen is not required (Refer to HED Doc. No.014549 for the complete report of the HIARC).

II. EXPOSURE ASSESSMENTS

A. Dietary Food Exposure Considerations

(*Correspondence:* F. Fort to B. Tarplee dated 03/29/01; Responses prepared by J. Morales)

Tolerances are established for residues of the herbicide, oxyfluorfen, in or on many foods considered to be highly consumed by infants and children including many fruits, vegetables, grains, meat, and milk. Tolerance levels for these commodities range from 0.05 - 0.10 ppm. The tolerance expression for residues of oxyfluorfen *per se* in/on plant and animal commodities has recently been reassessed and found to be appropriate, no changes are required. There are no established Codex MRLs for oxyfluorfen.

Monitoring data from USDA's Pesticide Data Program (PDP) are available for oxyfluorfen (1993-1999). Most of the commodities analyzed by PDP resulted in nondetectable residues. A quantitative usage assessment based on available pesticide survey usage information for the years of 1987 through 1997 is also available (December 30, 1998; Jihad Alsadek) and is currently being updated by BEAD.

The HED Dietary Exposure Evaluation Model (DEEM™) will be used to assess the risk from acute and chronic dietary exposure to residues in food resulting from the use of oxyfluorfen. These analyses are expected to use tolerance level residues, anticipated residue levels calculated from field trial and monitoring data, and percent crop treated information as available.

The Committee recognizes that further refinement to the dietary food exposure analyses may be required as the risk assessment is developed. Therefore, provided the final dietary food exposure assessment does not underestimate the potential risk for infants and children, the safety factor recommendations of this Committee stand.

B. Dietary Drinking Water Exposure Considerations

(*Correspondence:* F. Fort to B. Tarplee dated 03/29/01; Responses prepared by A. Al-Mudallal)

The environmental fate database is adequate to characterize drinking water exposure for the parent compound. These data indicate that oxyfluorfen is persistent in the environment and becomes less mobile in soil after aging. Aqueous photolysis is expected to be the major route of dissipation. No fate data were submitted on the metabolites to assess their persistence and mobility.

No monitoring data are available for oxyfluorfen. Models were used to estimate environmental concentrations of the parent:

> Surface Water: PRZM/EXAMS modeling was used with an index reservoir scenario and a percent crop area (PCA) adjustment factor for the use of oxyfluorfen on apples (maximum application rate).
>
> Ground Water: SCI-GROW modeling was used to estimate the concentration of oxyfluorfen in drinking water from shallow ground water sources.

The Committee recognizes that further refinement to the dietary drinking water exposure

analyses may be required as the risk assessment is developed. Therefore, ***provided the final dietary drinking water exposure assessment includes all environmental degradates of toxicological concern and does not underestimate the potential risk for infants and children***, the safety factor recommendations of this Committee stand.

C. Residential Exposure Considerations

(*Correspondence:* F. Fort to B. Tarplee dated 03/29/01; Responses prepared by T. Dole)

Oxyfluorfen is registered for residential use as spot treatment to kill weeds on patios, driveways and similar areas applied from a sprinkler can or trigger sprayer. Based on the use pattern (spot treatments), minimal postapplication exposure is expected to infants and children from dermal contact or ingestion of oxyfluorfen in the residential environment.

III. SAFETY FACTOR RECOMMENDATION AND RATIONALE

A. Recommendation of the Factor

The Committee recommended that the FQPA safety factor be **removed (1x).**

B. Rationale for Removing the FQPA Safety Factor

The Committee concluded that the safety factor could be removed for oxyfluorfen because:

1. There is no indication of quantitative or qualitative increased susceptibility of rats or rabbits to *in utero* and/or postnatal exposure;
2. A developmental neurotoxicity study (DNT) with oxyfluorfen is **not** required; and
3. The dietary (food and drinking water) and non-dietary (residential) exposure assessments will not underestimate the potential exposures for infants and children.